

BAB V NERACA PANAS

Kapasitas Produksi	: 162.000 Ton/Tahun
Operasi Pabrik	: 300 Hari/Tahun
Basis	: 1 Jam operasi
Satuan	: Kilo Joule (kJ)
Temperatur Referensi	: 25°C

5.1 Heat Exchanger (HE-01)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q1	5,651.0501	
Q2		84,765.7519
Qsteam in	129,339.0738	
Qsteam out		50,224.3720
Total	95,769,139.3139	95,769,139.3139

5.2 Reaktor (R-01)

Komponen	Input (kj/jam)	Output(kj/jam)
Q5	2,425,796,827.5678	
Q6		-1,923,185,208.1564
Qsteam	137,452,028.5200	
Q reaksi		4,486,434,064.2442
Total	2,563,248,856.0878	2,563,248,856.0878

5.3 Screw Conveyor (C-01)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q3	135.7365	273.5694
Q4	137.8328	0.0000
Total	273.5694	273.5694

5.4 Chiller (CO-01)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q7	95,000,077,35	
Q8	95,001,214.97	95,001,214.97
QW in	23,750,019,34	
QW out		118,750,096.69
Total	213,751,311.6644	213,751,311.6644

5.5 Kolom Destilasi (KD-01)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q9	1245530.0192	
Q10		1245530.0192
Qc	17776.52.5260	
Qv		17776.52.5260
Total	3023172.5452	3023172.5452

5.6 Total Condensor (TC-01)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q12	4.855.201.842,3249	-
Q13	-	1.227.088.246,3041
Qwin	6.647.452.615,5286	-
Qwout	-	10.275.566.211,5593
Total	11.502.654.457,8534	11.502.654.457,8534

5.7 Reboiler (RB-01)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q14	55,167,868.0807	
Q15		2,130,734,878,1531
Q reflux		917466032.5
Q Steam in	5,806,951.285,5998	
Q Steam out		2,813,918,243.0556
Total	5,862,119,153.6804	5,862,119,153.6804

5.8 Chiller (CO-02)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q18	70059067.7776	
Q19	70060384.9684	700059726.3730
QW in	6444499.1097	
QW out		63615227.2632
Total	133,674,953.6362	133,674,953.6362

5.9 Kolom Destilasi (KD-02)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q31	504,667,959.92	
Q32		199,222,115.17
Q 33		356,941,823.41
Qc	306,762,563.54	
Qv		255,266,584.87
Total	811,430,523.46	811,430,523.46

5.10 Total Condensor (TC-02)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q34	4.855.201.842,3249	-
Q35	-	1.227.088.246,3041
Qwin	6.647.452.615,5286	-
Qwout	-	10.275.566.211,5593
Total	11.502.654.457,8534	11.502.654.457,8534

5.11 Reboiler (RB-02)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q36	55,167,868.0807	
Q37		2,130,734,878,1531
Q reflux		917466032.5
Q Steam in	5,806,951.285,5998	
Q Steam out		2,813,918,243.0556
Total	5,862,119,153.6804	5,862,119,153.6804

5.12 Chiller (CO-03)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q38	70059067.7776	
Q39	70060384.9684	700059726.3730
QW in	6444499.1097	
QW out		63615227.2632
Total	133,674,953.6362	133,674,953.6362

5.13 Heat Exchanger (HE-02)

Komponen	Input (kj/jam)	Output (kj/jam)
Q25	7,437,482,431.2773	
Q26		7,432,482,419.1209
Qsteam in	19.8737	
Qsteam out		7.7173
Total	7,432,482,426.8381	7,432,482,426.8381

5.14 Reaktor (R-02)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q27	1,823,264,349.1956	
Q28		2,715,582,855.7018
Qsteam	137,452,028.5200	
Qreaksi		-4,401,395,176.38
Total	1,685,812,320.6756	1,685,812,320.6756

5.15 Chiller (CO-04)

Komponen	Input (Kj/Jam)	Output (Kj/Jam)
Q40	24,234,473.68	
Q41	24,234,693.62	24,234,583.25
Qw in	163,583,436.26	
Qw out		187,818,019.41
Total	212,052,602.55	212,052,602.55

5.16 Heat Exchanger (HE-04)

komponen	Input (kj/jam)	Output (kj/jam)
Qin	916,198,084	
Qout		919,135,492
Qsteam in	4,228,254	
Qsteam out		1,290,847
Total	920,426,338	920,426,338